

DAVOOD TOFIGHI

DAVOOD TOFIGHI
ASSISTANT PROFESSOR
SCHOOL OF PSYCHOLOGY
GEORGIA INSTITUTE OF TECHNOLOGY
654 CHERRY STREET
ATLANTA, GA 30332
USA
TEL: +1 (404) 894-7558
[HTTP://WWW.AMP.GATECH.EDU/PEOPLE](http://www.amp.gatech.edu/people)

POSITION

2011 – present Assistant Professor, School of Psychology, Georgia Institute of Technology

EDUCATION

December 2010 **Ph.D. in Quantitative Psychology**
Arizona State University
Dissertation: *Multilevel Mediation Analysis: Statistical Assumptions, Misspecification, and Centering*

August 2005 **Masters in Educational Psychology-Qualitative and Quantitative Methodology in Education (QQME)**
University of Nebraska-Lincoln.
Thesis: *The effects of ignoring scalar noninvariance on the Type I error and power of group mean comparisons*

August 2003 **Masters in Industrial and Management Systems Engineering**
University of Nebraska-Lincoln.

August 2003 **Minor in Statistics**
University of Nebraska-Lincoln

January 1999 **Bachelor in Industrial Engineering**
Sharif (Aryamehr) University of Technology, Tehran, Iran.

WORK IN PROGRESS

Tofighi, D. & Kelley, K. (in preparation). *Bayesian outlier detection in SEM.*
Tofighi, D. & Kelley, K. (in preparation). *A more robust test of indirect effect in mediation analysis.*

SUBMITTED JOURNAL ARTICLES

Tofighi, D. & Kelley, K. (Revise & Resubmit). Assessing omitted confounder bias in multilevel mediation models. *Multivariate Behavior Research.*

Tofighi, D., Dunford, B. B., Williams, E., & Kelley, K. (under review). *A false sense of security: Robustness checks for popular complex mediation tests.*

PEER-REVIEWED PUBLICATIONS

Tofighi, D. & MacKinnon, D. P. (in press). Monte Carlo confidence intervals for complex functions of indirect effects. *Structural Equation Modeling: A Multidisciplinary Journal.* doi: 10.1080/10705511.2015.1057284

Tofighi, D. & Thoemmes, F. (2014). Single-level and multilevel mediation analysis. *The Journal of Early Adolescence, 34,* 93–119. doi:10.1177/0272431613511331

Tofighi, D. (2014). Mediation analysis. In: Michalos A.C. (Ed.). *Encyclopedia of Quality of Life and Well-Being Research*. Springer, Dordrecht, Netherlands: Springer, pp. 3963-3966.

Tofighi, D. (2014). Mediator. In: Michalos A.C. (Ed.). *Encyclopedia of Quality of Life and Well-Being Research*. Springer, Dordrecht, Netherlands: Springer, pp. 3966-3967.

Tofighi, D., West, S. G., & MacKinnon, D. P. (2013). Multilevel mediation analysis: The effects of omitted variables in the 1-1-1 model. *British Journal of Mathematical and Statistical Psychology*, 66, 290–307. doi:10.1111/j.2044-8317.2012.02051.x

MacKinnon, D. P., & **Tofighi, D.** (2013). Statistical mediation analysis. In I. B. Weiner, J. A. Schinka, & W. F. Velicer (Eds.), *Handbook of Psychology, Research Methods in Psychology* (Vols. 1-12, Vol. 2, p. 717). Hoboken, N.J.: Wiley.

Tofighi, D. & MacKinnon, D. P. (2011). RMediation: An R package for mediation analysis confidence intervals. *Behavior Research Methods*, 44, 692–700. Note. A web version of the *RMediation* program is available from: <http://amp.gatech.edu/RMediation>

Tofighi, D., MacKinnon, D. P., & West, S. G. (2009). A general method to derive covariances between parameter estimates in mediation models [abstract]. *Multivariate Behavioral Research*, 44, 855.

Tofighi, D., MacKinnon, D. P., & Yoon M. (2009). Covariances between regression coefficient estimates in a single mediator model. *British Journal of Mathematical and Statistical Psychology*, 62, 457-484.

Enders, C.K., & **Tofighi, D.** (2008). The impact of misspecifying class-specific residual variances in growth mixture models. *Structural Equation Modeling: A Multidisciplinary Journal*, 15, 75-95.

Enders, C.K., & **Tofighi, D.** (2007). Centering predictor variables in cross-sectional multilevel models: A new look at an old issue. *Psychological Methods*, 12, 121-138.

Tofighi, D., & Enders, C.K. (2007). Identifying the correct number of classes in growth mixture models. In G. R. Hancock & K. M. Samuelsen (Eds.), *Advances in latent variable mixture models* (pp. 317-341). Greenwich, CT: Information Age.

Tofighi, D., & Enders, C.K. (2007). The harmonic mean. In *Encyclopedia of measurement and statistics* (Vol. 2, pp. 425-426). Newbury Park, CA: Sage.

SOFTWARE DEVELOPMENT

- We extended the *RMediation* package (Tofighi and MacKinnon, 2011) to build a confidence interval for *any* complex nonlinear function of the model parameters in single-level and multilevel structural equation models. With this extension, one now can produce the Monte Carlo and Multivariate Delta Method to compute a CI.
- My research philosophy has been to make complex software available to a wide variety of audience. To reach this goal, I first made calculation of CI for a mediated effect accessible by building a web application. The users do not need to learn any specific package. Recently, Georgia Tech PhD student, Taylor Baldwin, under my supervision, developed a web application for the *RMediation* Monte Carlo extension (Tofighi & MacKinnon, in press).

GRANTS

Funded:

Title of Project: Application of Bayesian methods in multilevel and longitudinal mediation models

Agency/Company: NIH

Total Dollar Amount: \$77,226

Role: PI

Collaborators: This grant has mentors (sponsors): Dr. David MacKinnon and Stephen west

Period of Contract: 8/2009- 12/2010

Candidate's Share: 95%

Title of Project: Research Coordination Network on Leveraging Computational Social Science for Understanding Virtual Organizations

Agency/Company: NSF

Total Dollar Amount: \$324,024

Role: Co-PI

Collaborators: Leslie DeChurch (PI), Bruce Walker (Co-PI), Noshir Contractor (Co-PI)

Period of Contract: 12/2013 – 12/2015

Candidate's Share: 1/3

Title of Project: Causal mediation analysis in the presence of latent heterogeneity

Agency/Company: Institute for the Social Sciences, Cornell University

Total Dollar Amount: \$3,100

Role: Co-PI

Collaborators: Felix Thoemmes (Co-PI)

Period of Contract: 12/2013 – 12/2014

Candidate's Share: 50% (~\$1500)

Not Funded:

Title of Project: Team Cognition over Long Durations: Shifts in Team Mental Models and Team Communication

Agency/Company: NASA

Total Dollar Amount: 1,050,000 (maximum)

Role: Co-PI

Collaborators: Ute Fischer, Georgia Tech (PI), Kathleen Mosier, San Francisco State University (Co-PI)

Period of Contract: 12/2013 – 12/2014

Candidate's Share: 25%-35%

Title of Project: R01 Innovative Robust Methods to Ensure Accuracy and Adequacy of Multilevel and Longitudinal

Agency/Company: NIH

Total Dollar Amount: ~\$500,000

Role: PI

Collaborators: None

Period of Contract: 2013-2016

Candidate's Share: 90%

[Impact score 44 - This grant proposal got scored by NIH in the first round and I was invited to resubmit, which I did.]

Title of Project: Motivation in Multi-Team Systems

Agency/Company: Army Research Institute

Total Dollar Amount: \$883,284

Role: Co-PI
Collaborators: Dr. Ruth Kanfer (PI) and Leslie DeChurch (Co-PI)
Period of Contract: 2013
Candidate's Share: 15%-30%

SPONSORED TALK/POSTER

Tofighi, D. (2012, August). *Mediation Analysis in Drug Prevention using RMediation Package*. Competitive Early Career Investigator Award Poster Session at the 120th American Psychological Association Annual Convention Orlando, FL, Sponsored by the NIDA/NIAAA/APA (Divisions 28 & 50).

Tofighi, D. (2011, December) *Statistical Mediation Analysis in Prevention Research*. Behavioral Research Program Crosstalk Invited Speaker Series. National Cancer Institute, Bethesda, MD.

INVITED TALK/POSTER

Tofighi, D. (2012, April) *The Effect of Omitted Variables in the Multilevel Mediation Model*. School of Industrial and Systems Engineering Seminar Series, Georgia Institute of Technology, Atlanta, GA.

PRESENTATIONS/ POSTERS

Tofighi, D. (2014, July). *Confidence Intervals for Polynomial Quotient of Indirect and Direct effects*. Paper presented at VI European Congress of Methodology, Utrecht, The Netherlands.

Tofighi, D. (2014, July). *Bayesian Outlier Detection in SEM*. Poster Session at VI European Congress of Methodology, Utrecht, The Netherlands.

Tofighi, D. (2014, July). *Monte Carlo Integration in the RMediation Package*. Poster Session at VI European Congress of Methodology, Utrecht, The Netherlands.

Tofighi, D. (2014, May). *Outlier Detection in SEM*. Paper presented at the Modern Modeling Methods (M³) Conference, Storrs, Connecticut.

Tofighi, D., & MacKinnon, D. P. (2014, May). *Monte Carlo Confidence Intervals for Complex Functions of Indirect Effects*. Poster Session at 22nd Society for Prevention (SPR) Annual Meeting, Washington, DC.

Tofighi, D. (2013, August). *Bayesian Outlier Detection in Structural Equation Models*. Poster Session at the 121th American Psychological Association Annual Convention, Honolulu, HI (Division 5).

Tofighi, D., & West, S. G., & MacKinnon, D. P. (2012, July). *Multilevel mediation analysis: The effects of omitted variables in the 1-1-1 model*. Paper presented at the V European Congress of Methodology, Santiago de Compostela, Spain. **(Best Presentation Winner)**

Tofighi, D., & West, S. G., & MacKinnon, D. P. (2012, May). *Multilevel mediation analysis: The effects of omitted variables in the 1-1-1 model*. Poster presented at 20th Society for Prevention (SPR) Annual Meeting, Washington, DC.

Tofighi, D., & West, S. G., & MacKinnon, D. P. (2012, May). *The effects of omitted variables in multilevel model analysis*. Paper presented at the Modern Modeling Methods (M³) Conference, Storrs, Connecticut.

Tofighi, D., MacKinnon, D. P., & West, S. G. (2009, October). *A general method to derive covariances between parameter estimates in mediation models*. Paper presented at the Seventh Annual Meeting of the Society of Multivariate Experimental Psychology- graduate student pre-conference, Glendon Beach, Oregon.

Tofighi, D., & MacKinnon, D. P. (2009, April). *Comparison of methods for constructing 95% confidence intervals in a single mediator model*. Paper presented at the Annual Meeting of the American Educational

Research Association, San Diego, CA.

Tofighi, D., MacKinnon, D. P., & Yoon M. (2008, July). *Covariance among regression coefficient estimates in a single mediator model*. Paper presented at the International Meeting of the Psychometric Society, Durham, NH.

Tofighi, D., & Enders, C.K. (2008, April). *The effects of ignoring scalar noninvariance on the Type I error and power of group mean comparisons*. Paper presented at the Annual Meeting of the American Educational Research Association, New York City, NY.

Enders, C.K., & Tofighi, D. (2007, April). *Centering predictor variables in cross-sectional multilevel models: A new look at an old issue*. Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL.

Russell, S. T, Crockett, L. J. & Tofighi, D. (2007, November). *Comparison of European-American and African-American youth*. Paper presented at the National Council on Family Relations Annual Conference, Pittsburgh, PA.

Enders, C.K., & Tofighi, D. (2006, May). *Determining the number of classes in a growth mixture model analysis*. Paper presented at the conference of the Center for Integrated Latent Variable Research, College Park, MD.

Crockett, L. J., Tofighi, D., & Russell, S. T. (2006, March). *The role of parenting practices in adolescents' self-esteem: A comparison of European and African American youth*. Paper presented at the Biennial Meeting of the Society for Research on Adolescence, San Francisco, CA.

Enders, C.K., & Tofighi, D. (2006, April). *Determining the number of classes in a growth mixture model analysis*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Enders, C.K., & Tofighi, D. (2005, April). *The impact of misspecifying class-specific residual variances in growth mixture models*. Paper presented at the Annual Meeting of the American Educational Research Association, Montreal, Canada.

Tofighi, D. (2005, April). *Enhancing validity in mixed methods design*. Paper presented at the Annual Meeting of the American Educational Research Association, Montreal, Canada.

TEACHING

Semester, Year	Course Number	Course Title	Number of Students
Fall 2015	PSYC 2020/6022	Psychological Statistics	22
Spring 2015	PSYC 6060	Statistical Analysis II	23
Fall 2014	PSYC 8060	Introduction to Multilevel Analysis	10
Fall 2014	PSYC 8908	Statistical Programming with R	8
Spring 2014	PSYC 6020	Statistical Analysis II	18
Fall 2013	PSYC 2020/6022	Psychological Statistics	18
Spring 2013	PSYC 6020	Statistical Analysis II	18
Fall 2012	PSYC 8060	Introduction to Multilevel Analysis	6
Spring 2012	PSYC 8060	Introduction to Multilevel Analysis	11

PROFESSIONAL SERVICES:

- I organized and chaired a poster forum entitled “New Methods in Mediation Analysis” at the 20th Society for Prevention (SPR) Annual Meeting, Promoting Healthy Living Through Prevention Science, Washington, DC.

- Member of APA Division 5 and Society for Prevention
- Member of Early Career Prevention Network (ECPN) Steering Committee in Society for Prevention.

Editorial Board: (2013-Present)

- Psychological Methods (APA Journal)

Dissertation/Thesis/Comp Committee Members

- Samuel Posnock (Ph.D., I/O)
- Hea Won Jun (Ph.D., Quant)
- Raquel Asencio Hodge (Ph.D, I/O) (Prelim)
- Ben Jones (Ph.D, I/O) (Thesis)
- Yeongyu Lim (Ph.D., Quant)
- Charles Calderwood (Ph.D., I/O)
- Heather Hayes (Ph.D., Quant)
- Amy Wax (Ph.D., I/O)

Reviewer:

- Multivariate Behavioral Research
- PLOS ONE
- Structural Equation Modeling
- Australian & New Zealand Journal of Statistics
- Journal of Experimental Psychology: Applied

OTHER HONORS

- Selected as a Center for the Enhancement of Teaching and Learning (CETL) Class of 1969 Teaching Fellow at Georgia Tech (\$1000), 2014.
- Society of Multivariate Experimental Psychology (SMEP) Travel Award (\$900), 2009
- Arizona State University, Department of Psychology, Travel Award (\$250), 2009
- Society of Multivariate Experimental Psychology (SMEP), Workshop Travel Award (\$1000), 2008
- Arizona State University, Department of Psychology, Travel Award (\$250), 2008
- Arizona State University, Graduate College, the Earl A. and Lenore H. Tripke Professional Workshop Travel Award (\$800), 2006
- University of Nebraska-Lincoln, Department of Educational Psychology, Travel Award
- Dean's List, Industrial Engineering Department, Sharif University of Technology, 1995 – 1999